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EXAMINER

NOGUEROLA, ALEXANDER STEPHAN

ART UNIT PAPER NUMBER

1753

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9

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/852,800

Applicant(s)

HAYASHIZAKI, YOSHIHIDE

Examiner

ALEX NOGUEROLA

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☒ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 7.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☒ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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Information Disclosure Statement

1. The information disclosure statement filed August 13, 2001 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent listed that is not in the English language. It has been placed in the application file, but the information referred to therein has not been considered. The Aizawa article is entirely in Japanese and so has not been considered by the examiner.

Oath/Declaration

2. In the preliminary amendment of May 11, 2001 Applicant claims priority under 35 U.S.C. § 120 to PCT/JP00/0247; however, no such priority is indicated in Applicant's declaration.

Claim Rejections - 35 USC § 112

3. Claims 1-5 and 12-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention:

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- a) Claim 1, line 2: "(hereinafter "support member")" should be deleted;
- b) Claim 1, line 2: -- support -- should be inserted between "a" and "member";
- c) Claim 1, line 3: -- of said electrophoretic support is -- should be inserted before "for";
- d) Claim 1: method steps should be in the active voice. So "washed" in line 4 should be -- washing --, which would be consistent with line 7 of the claim, and "supported" in line 5 should be -- supporting --;
- e) Claim 3: Is "tabular" synonymous with planar or was tubular meant?
- f) Claim 3, line 3: "(hollow cylinder)" should be deleted or should replace "columnar," without using parentheses;
- g) Claim 12: -- electrophoretic -- should be inserted before "gel";
- h) Claim 14: steps should be in the active voice, so "employed" should be -- employing --;
- i) Claim 15: steps should be in the active voice, so "separated" should be -- separating --;
- j) Claim 15: is the "substance to be separated" to be separated with the electrophoretic matrix of claim 1? and
- k) Claim 17, line 3: -- the -- should be inserted before "gel".

4. Note that dependent claims will have the deficiencies of base and intervening claims.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 1-3, 14-16, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu et al. (US 6,533,914 B1) in view of Ogawa (US 6,013,331).

Addressing claim 1, The Liu et al. reference teaches a method for preparing an electrophoretic support wherein at least one portion of the surface of a support member of the electrophoretic support is for supporting an electrophoretic matrix is washed (abstract; Figure 11; and col. 10, ll. 23-31), and the matrix is then supported by the support member (col. 10, ll. 31-38), characterized in that the support member comprises a silicon-containing material (col. 9, ll. 55-60).

The Liu et al. reference only mentions washing the electrophoretic support member with a strong alkali (col. 10, ll. 24-28).

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The Ogawa reference teaches washing a support member with a weak alkali-based detergent before coating it with a polymer film (abstract and col. 26, ll. 11-14). It would have been obvious to one with ordinary skill in the art at the time the invention was made to also use a weak alkali-based detergent as taught by the Ogawa reference in the invention of the Liu et al. reference (who also discloses coating the surface of the support member with a polymer (col. 10, ll. 23-26)) because as taught by the Ogawa reference the weak alkali-based detergent will remove grease from the surface of the substrate member (col. 26, ll. 11-14).

Addressing claim 2, the Liu et al. reference teaches gels and entangled polymers in col. 4, ll. 30-35 and col. 10, ll. 24-55.

Addressing claim 3, as seen in Figures 5-11 the Liu et al. reference teaches a substantially tabular support member having columnar regions.

Addressing claim 14, Figure 11 of the Liu et al. reference shows an embodiment employing the support. As stated in the rejection of claim 1 it would have been obvious to clean the support with the weak alkali-based detergent taught by the Ogawa reference to ensure that no grease or oil, which would be contaminants, are present on the fluidic portions of the support.

Addressing claims 15, 16, and 20, the Liu et al. reference teaches separating DNA in col. 4, ll. 22-29.

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8. Claims 4, 5, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu et al. (US 6,533,914 B1) in view of Ogawa (US 6,013,331) as applied to claims 1-3 above, and further in view of Church (US 4,213,873).

Addressing claims 4, although the Liu et al. reference as modified by the Ogawa reference does not mention whether the weak alkali solution is an organic solution, an inorganic solution, or any combination thereof, it should be first noted that this is a comprehensive list, so the weak alkali solution of the Liu et al. reference as modified by the Ogawa reference must be either an organic solution, an inorganic solution, or a combination thereof.

The Church reference teaches a combined inorganic and organic weak alkali solution (claim 1) for cleaning glass (abstract). It would have been obvious to one with ordinary skill in the art at the time the invention was made to use the combined inorganic and organic weak alkali solution taught by the Church reference in the invention of the Liu et al. reference as modified by the Ogawa reference because the weak alkali solution of Church is very effective for removing oil and grease from glass (col. 1, ln. 60 – col. 2, ln. 27).

Addressing claims 5 and 21, the Liu et al. reference as modified by the Ogawa reference does not mention whether the weak alkali solution is an aqueous solution of a carbonate.

The Church reference teaches an aqueous solution of a carbonate (claim 1) for cleaning glass (abstract). It would have been obvious to one with ordinary skill in the art at the time the invention was made to use the aqueous solution of a carbonate as taught by the Church reference in the invention of the Liu et al. reference as modified by the Ogawa reference because the

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aqueous solution of the Church reference is very effective for removing oil and grease from glass (col. 1, ln. 60 – col. 2, ln. 27), with the carbonate component of the solution imparting long-lasting lubricity to the cleaning solution (col. 21, ln. 23 – col. 25, ln. 65). For claim 21 note that hydrogencarbonate is taught in *Table XII*, which spans columns 23 and 24 of the Church reference, for example.

9. Claims 6-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Osterhoudt et al. (US 5,066,376).

Addressing claims 6 and 7, it should first be noted that this claim is a product-by-process claim, so only the structural limitations are given patentable weight, unless Applicant establishes an unobvious difference over the Osterhoudt et al. reference result from the process step of the claim MPEP 2113. Thus, in this claim, Applicant only requires an electrophoretic gel comprising polyacrylamide or a polymer of a derivative of acryl amide, especially since only the use of particular solvents, which are not reactants, is additionally being claimed. Nevertheless, the Osterhoudt et al. teaches an electrophoretic gel comprising a polymer of acrylamide prepared in the presence of two or more polar organic solvents (col. 9, ll. 9-55). For claim 7 note that claim 6 does not require that the electrophoretic gel is polymerizing a derivative of an acrylamide, the electrophoretic gel may be made by polymerizing an acrylamide, which the Osterhoudt et al. reference teaches.

Addressing claims 8 and 9, methanol is taught in col. 9, ll. 19-23.

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Addressing claims 10 and 11, these claims require a water-soluble polymer, particularly dextran, polyethylene glycol, or cellulose, to be present during the polymerization of the acrylamide. The Osterhoudt et al. reference does not teach any of these water-soluble polymers being present during the polymerization of the acrylamide; however, the Osterhoudt et al. reference still reads on claims 10 and 11 because these claims do not require the water-soluble polymer to be present in the final product, that is, in the polymerized acrylamide. The water soluble polymer need only be *present* during the polymerization of the acrylamide.

Addressing claim 12, the Osterhoudt et al. reference discloses at least a slab gel (col. 9, ln. 67 – col. 10, ln. 2).

10. Claims 13 and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu et al. (US 6,533,914 B1) in view of Ogawa (US 6,013,331) as applied to claims 1-3 above, and further in view of Osterhoudt et al. (US 5,066,376), as applied to claims 6-12 above.

Addressing claim 13, Although the Liu et al. reference as modified by the Ogawa reference teaches using polyacrylamide as a separation medium (col. 10, ll. 24-26 and col. 4, ll. 30-35 in the Liu et al. reference), the polyacrylamide gel of the Osterhoudt et al. reference is not disclosed. It would have been obvious to one with ordinary skill in the art at the time the invention was made to use the electrophoretic gel of the Osterhoudt et al. reference in the Liu et al. reference as modified by the Ogawa reference because as taught by the Osterhoudt et al. reference the gel can be easily and conveniently made for a wide range of sieving effects (col. 2,

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ll. 3-32; col. 4, ll. 34-39; and col. 5, ll. 18-25). That is, with the Osterhoudt et al. reference teaches how to safely and conveniently make customized electrophoretic gels for optimum separations.

Addressing claims 17-19, the Osterhoudt et al. reference discloses using the gel for separating nucleic acids in col. 1, ll. 12-20. For claims 18 and 19 note that claim 17 does not require using the gel of claim 6 to separate the nucleic acids or PNA fragments in the presence of a polar organic solvent, nucleic acids or PNA fragments can be separated with the gel prepared according to claim 13, which the Osterhoudt et al. reference teaches, as disclosed in the rejection above.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALEX NOGUEROLA whose telephone number is (703) 305-5686. The examiner can normally be reached on M-F 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, NAM NGUYEN can be reached on (703) 308-3322. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Alex Noguerola
Alex Noguerola

9/12/03

Primary Examiner
TC1700